AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) Method for equalizing and demodulating a data signal transmitted using a single-carrier or multi-carrier data-transmission procedure via a time-variant channel to a receiver, wherein scatterer coefficients including attenuation, delay and Doppler frequency in the received data signal, which cause signal distortion in the channel, are measured in the receiver, and the data signal is equalized with the scatterer coefficients determined in this manner and then demodulated with them, wherein the scatterer coefficients are measured via a maximum likelihood criterion and wherein a recursive-least-square algorithm is used iteratively for the measurement of the scatterer coefficient.

2. (Previously presented) Method according to claim 1, wherein the measurement of the scatterer coefficients and the equalization of the data signal take place within the time domain.

3. (Previously presented) Method according to claim 2, wherein the measurement of the scatterer-coefficients and the equalization of the data signals is in the context of single-carrier data transmission schemes.

4. (Canceled)

5. (Previously presented) Method according to claim 1, wherein the measurement of the scatterer coefficients and the equalization of the data signal take place within the frequency domain.

6. (Previously presented) Method according to claim 5, wherein the measurement of the

scatterer-coefficients and the equalization of the data signals is in the context of multi-carrier data transmission schemes.

7. - 8. (Canceled)

9. (Previously presented) Method according to claim 1, wherein a first measurement of the scatterer coefficients is implemented with the assistance of a known data sequence.

10. (Previously presented) Method according to claim 1, wherein the first measurement of the scatterer coefficients is implemented block-wise over an entire data sequence.

11. (Previously presented) Method according to claim 1, a Kalman algorithm is used iteratively for the measurement of the scatterer coefficients.

12. (Canceled)

13. (Previously presented) Method according to claim 9, wherein the scatterer coefficients determined in the first measurement are used for receiving the associated user data, wherein the data are equalized and demodulated block-wise over an entire data sequence, and the scatterer coefficients is determined in the first measurement are corrected with reference to the data equalized and demodulated in this block-wise manner.

14. (Previously presented) Method according to claim 1, wherein the scatterer coefficients determined in the first measurement are used for receiving the associated user data, wherein the scatterer coefficients determined in the first measurement are corrected according to a Kalman or recursive-least-square algorithm with reference to the data equalized and demodulated.

15. (Previously presented) Method according to claim 13, wherein a tree-search procedure is used for correction of the scatterer coefficients and for data demodulation, wherein,

the scatterer coefficients and metrics are measured, in each case, for all possible data sequences, and those data sequences, which provide the best maximum-likelihood-metric, are then selected from the tree structure.

16. (Previously presented) Method according to claim 15, wherein the scatterer coefficients corresponding to the selected best data sequences are used for subsequent equalization and demodulation.

17. (Previously presented) Method according to claim 15, wherein selection of the data sequences is carried out block-wise for the entire data sequence observed.

18. (Previously presented) Method according to claim 15, wherein the data sequences are selected after a predetermined pathway depth of the tree has been reached.

19. (Previously presented) Method according to claim 15, wherein a metric-first algorithm is used in the tree-search procedure.

20. (Previously presented) Method according to claim 15, wherein a breadth-first algorithm is used in the tree-search procedure.

21. (Previously presented) Method according to claim 15, wherein a depth-first algorithm is used in the tree-search procedure.

22. (Previously presented) Method according to claim 15, wherein the pathway depth and/or the number of pathways is varied adaptively in the tree-search procedure according to the scatterer coefficients determined.

23. (Currently amended) Method according to ~~any one of~~ claim 15, wherein the metric value is also presented in the output of the demodulated data sequence.

24. (Previously presented) Method according to claim 15, wherein in addition to the data

sequence with the best maximum-likelihood metric, other, next-best data sequences with a next-best-likelihood metric are also presented.

25. (Currently amended) Method according to ~~any one of~~ claim 15, wherein when receiving data signals coded according to a code, exclusively data sequences corresponding to valid code words are included in the tree-search procedure.

26. (Previously presented) Method according to claim 25, wherein in addition to taking the code into consideration, a Viterbi algorithm or APP algorithm is used in the tree-search procedure.

27. (Previously presented) Method according to claim 1, wherein the first measurement of scatterer coefficients is implemented exclusively with unknown useful data sequences, and that default values are used in the initialization of the algorithm instead of the training and synchronization sequences.

28. (Previously presented) Method according to claim 1, wherein the maximum number of scatterer coefficients to be included in an algorithm is adapted in each case on the basis of the scatterer coefficients previously determined.

29. – 36. (Canceled)

Please add the following new claims 37 and 38.

37. Method for equalizing and demodulating a data signal transmitted using a single-carrier or multi-carrier data-transmission procedure via a time-variant channel to a receiver, wherein scatterer coefficients including attenuation, delay and Doppler frequency in the received data signal, which cause signal distortion in the channel, are measured in the receiver, and the data signal is equalized with the scatterer coefficients determined in this manner and then

demodulated with them, wherein the scatterer coefficients are measured via a maximum likelihood criterion and wherein the scatterer coefficients determined in the first measurement are used for receiving the associated user data, wherein the scatterer coefficients determined in the first measurement are corrected according to a Kalman or recursive-least-square algorithm with reference to the data equalized and demodulated.

38. Method for equalizing and demodulating a data signal transmitted using a single-carrier or multi-carrier data-transmission procedure via a time-variant channel to a receiver, wherein scatterer coefficients including attenuation, delay and Doppler frequency in the received data signal, which cause signal distortion in the channel, are measured in the receiver, and the data signal is equalized with the scatterer coefficients determined in this manner and then demodulated with them, wherein the scatterer coefficients are measured via a maximum likelihood criterion and wherein the maximum number of scatterer coefficients to be included in an algorithm is adapted in each case on the basis of the scatterer coefficients previously determined.